What is claimed is:

1. Echo-canceling apparatus comprising a loudspeaker which outputs a received voice from a far-end speaker, a microphone to which the voice of a near-end speaker is input, and a CPU which controls the whole system, wherein:

the CPU comprises transfer function estimation means which estimates the transfer function of the acoustic echo path between a loudspeaker and a microphone,

first filter means which operates using the transfer function estimated by said transfer function estimation means,

first subtraction means which subtracts the output signal of said first filter means from the signal from said microphone,

second filter means which operates using the transfer function copied from said first filter means in case the estimation accuracy of said transfer function estimation means is high,

second subtraction means which subtracts the output signal of said second filter means from the signal from said microphone,

singing detection means which detects singing,

notch filter means which notches a specific frequency band component in the signal received from a far-end speaker, and

switch means which selects between the signal from the far-end speaker processed by said notch filter means and the signal from the far-end speaker not processed by said notch filter means.

2. Echo-canceling apparatus according to claim 1, wherein:

said first subtraction means outputs the subtraction result to said transfer function estimation means; and

said second subtraction means output the subtraction result to the far-end speaker.

3. Echo-canceling apparatus according to claim 2, wherein:

said first filter means and said second filter means perform convolutional operation of a signal from the far-end speaker and a transfer function and outputs the result of the convolutional operation.

4. Echo-canceling apparatus according to claim 2, wherein:

in case said singing detection means has not detected singing,

said second filter means operate using the transfer function copied from said first filter means.

5. Echo-canceling apparatus according to claim 2, wherein:

in case said singing detection means has detected

singing,

said singing detection means stops copying of the transfer function from said first filter means to saidsecond filter means and said notch filter means notches the component of the frequency band where singing has been made in a signal from the far-end speaker.

6. Echo-canceling apparatus according to claim 2, wherein:

said singing detection means, detecting a frequency band having a protruding section in the frequency spectrum of a signal to be input, determines that singing has been made in the frequency band having the protruding section.

7. Echo-canceling apparatus according to claim 2, wherein:

saidnotch filter means has a variable frequency band to be notched.

8. Echo-canceling apparatus according to claim 7, wherein:

saidnotch filter means is controlled for the notched frequency band to match the frequency band detected by said singing detection means where singing is made.

9. An echo-canceling method for the echo-canceling apparatus comprising a loudspeaker which outputs a received voice from a far-end speaker, a microphone to which the voice

of a near-end speaker is input, and a CPU which controls the whole system, wherein:

the method comprises a transfer function estimation step of estimating the transfer function of the acoustic echo path between a loudspeaker and a microphone,

a first filter step of performing arithmetic operation by using the transfer function estimated in said transfer function estimation step,

a first subtraction step of subtracting the output signal of said first filter step from the signal from said microphone,

a copy step of copying the transfer function used in said first filter step in case the estimation accuracy of said transfer function estimation step is high,

a second subtraction step of subtracting the output signal of said second filter step from the signal from said microphone,

a singing detection step of detecting singing,

a notch filter step of notching a specific frequency band component in the signal received from a far-end speaker, and

a switch step of selecting between the signal from the far-end speaker processed by said notch filter step and the signal from the far-end speaker not processed by said notch filter step.

10. The echo-canceling method according to claim 9, wherein:

said first subtraction step outputs the subtraction result to said transfer function estimation step; and

said second subtraction step outputs the subtraction result to the far-end speaker.

11. The echo-canceling method according to claim 10, wherein:

said first filter step and said second filter step perform convolutional operation of a signal from the far-end speaker and a transfer function and output the result of the convolutional operation.

12. The echo-canceling method according to claim 10, wherein:

in case said the singing detection step has not detected singing,

said second filter step performs arithmetic operation by using the transfer function copied in said copy step.

13. The echo-canceling method according to claim 10, wherein:

in case said singing detection step has detected singing,

said singing detection step stops copying the transfer

function used in saidfirst filter step and said notch filter step notches the component of the frequency band where singing has been made in a signal from the far-end speaker.

14. The echo-canceling method according to claim 10, wherein:

said singing detection step, detecting a frequency band having a protruding section in the frequency spectrum of a signal to be input, determines that singing has been made in the frequency band having the protruding section.

15. A program for echo-canceling apparatus comprising a loudspeaker which outputs a received voice from a far-end speaker, a microphone to which the voice of a near-end speaker is input, and a CPU which controls the whole system, wherein:

the program comprises a transfer function estimation step of estimating the transfer function of the acoustic echo path between a loudspeaker and a microphone,

a first filter step of performing arithmetic operation by using the transfer function estimated in said transfer function estimation step,

a first subtraction step of subtracting the output signal of said first filter step from the signal from said microphone,

a copy step of copying the transfer function used in

said first filter step in case the estimation accuracy of said transfer function estimation step is high,

a second subtraction step of subtracting the output signal of said second filter step from the signal from said microphone,

a singing detection step of detecting singing,

a notch filter step of notching a specific frequency band component in the signal received from a far-end speaker, and

a switch step of selecting between the signal from the far-end speaker processed by said notch filter step and the signal from the far-end speaker not processed by said notch filter step.

16. The program for the echo-canceling apparatus according to claim 15, wherein:

said first subtraction step outputs the subtraction result to said transfer function estimation step; and

said second subtraction step outputs the subtraction result to the far-end speaker.

17. The program for the echo-canceling apparatus according to claim 16, wherein:

said first filter step and said second filter step perform convolutional operation of a signal from the far-end

speaker and a transfer function and output the result of the convolutional operation.

18. The program for the echo-canceling apparatus according to claim 16, wherein:

in case said singing detection step has not detected singing,

said second filter step performs arithmetic operation by using the transfer function copied in saidcopy step.

19. The program for the echo-canceling apparatus according to claim 16, wherein:

in case said singing detection step has detected singing,

said singing detection step stops copying the transfer function used in said first filter step and said notch filter step notches the component of the frequency band where singing has been made in a signal from the far-end speaker.

20. The program for the echo-canceling apparatus according to claim 16, wherein:

said singing detection step, detecting a frequency band having a protruding section in the frequency spectrum of a signal to be input, determines that singing has been made in the frequency band having the protruding section.

21. A computer-readable recording medium on which is recorded a program for the echo-canceling apparatus comprising a loudspeaker which outputs a received voice from a far-end speaker, a microphone to which the voice of a near-end speaker is input, and a CPU which controls the whole system, wherein:

the program comprises a transfer function estimation step of estimating the transfer function of the acoustic echo path between a loudspeaker and a microphone,

a first filter step of performing arithmetic operation by using the transfer function estimated in said transfer function estimation step,

a first subtraction step of subtracting the output signal of saidfirst filter stepfrom said signal from said microphone,

a copy step of copying the transfer function used in saidfirst filter step in case the estimation accuracy of said transfer function estimation step is high,

a second subtraction step of subtracting the output signal of said second filter step from the signal from said microphone,

a singing detection step of detecting singing,

a notch filter step of notching a specific frequency band component in the signal received from a far-end speaker, and

a switch step of selecting between the signal from the

far-end speaker processed by said notch filter step and the signal from the far-end speaker not processed by said notch filter step.

22. The computer-readable recording medium on which is recorded a program for the echo-canceling apparatus according to claim 21, wherein:

said first subtraction step outputs the subtraction result to said transfer function estimation step; and

said second subtraction step outputs the subtraction result to the far-end speaker.

23. The computer-readable recording medium on which is recorded a program for the echo-canceling apparatus according to claim 22, wherein:

said first filter step and said second filter step perform convolutional operation of a signal from the far-end speaker and a transfer function and output the result of the convolutional operation.

24. The computer-readable recording medium on which is recorded a program for the echo-canceling apparatus according to claim 22, wherein:

in case said singing detection step has not detected singing,

said second filter step performs arithmetic operation by using the transfer function copied in saidcopy step.

25. The computer-readable recording medium on which is recorded a program for the echo-canceling apparatus according to claim 22, wherein:

in case said singing detection step has detected singing,

said singing detection step stops copying the transfer function used in said first filter step and said notch filter step notches the component of the frequency band where singing has been made in a signal from the far-end speaker.

26. The computer-readable recording medium on which is recorded a program for the echo-canceling apparatus according to claim 22, wherein:

said singing detection step, detecting a frequency band having a protruding section in the frequency spectrum of a signal to be input, determines that singing has been made in the frequency band having the protruding section.